

CLAIMS

1 1. A collision recovery signal processing unit for use with a multiple-access
2 telecommunications channel comprising antenna means 50 having a plurality of branches;
3 a plurality M of spatio-temporal filter means 52, 54 each arranged to estimate a signal
4 received by the antenna means by application of a different sequence of training-like
5 symbols TLS and to supply a corresponding candidate signal, SC1 to SCM; and signal
6 selector means 56 arranged to select from the candidate signals one or more signals in
7 accordance with a predetermined criterion.

1 2. A signal processing unit according to Claim 1 in which training symbols are
2 processed in addition to said training-like symbols.

1 3. A signal processing unit according to Claim 1 in which the pre-determined
2 criterion is the distance of a candidate signal from the finite alphabet.

1 4. A signal processing unit according to Claim 3 in which the filter means 52, 54
2 each operate on a number of information signals T received from the antenna means, in
3 which the finite alphabet has h symbols, and the number M of filter means is given by
4 $M=h^T$.

1 5. A signal processing unit according to Claim 1 in which the predetermined
2 criterion is the mean square error of the candidate signals.

1 6. A signal processing unit according to Claim 1 further comprising a plurality of
2 captured signal estimators 58, 60 arranged to receive the selected signals, and a different
3 signal selector 62.

1 7. A signal processing unit according to Claim 1 in which each spatio-temporal
2 filter means 52, 54 runs the same training-based or semiblind algorithm.

1 8. A radio telecommunications system comprising a plurality of time critical users
2 mn; encoder means 76 to encode signals from said users into a plurality of timeslots 10,

12; first transmitter/receiver means; second transmitter/receiver means 50; decoder means 86; and a data or speech sink 88; wherein connected to the second transmitter/receiver means 50 there is signal processing unit comprising antenna means 50 having a plurality of branches; a plurality M of spatio-temporal filter means 52, 54 each arranged to estimate a signal received by the antenna means by application of a different sequence of training-like symbols TLS and to supply a corresponding candidate signal, SC1 to SCM; and signal selector means 56 arranged to select from the candidate signals one or more signals in accordance with a predetermined criterion.

9. In a time critical telecommunications system having a multiple access channel in which collisions may occur, a method of collision resolution comprising the steps of receiving signals from the multiple access channel by an antenna having a plurality of branches; estimating received signals by application of a plurality of different sequences of training-like symbols to provide a plurality of candidate signals; and selecting one or more candidate signals in accordance with a predetermined criterion.